

WHAT IS CLAIMED IS:

1 1. A capillary optic produced by impression comprising the steps of:
2 providing a mold having an external profile figured for radiation transmission
3 along an axis;
4 providing at least one soft plate,
5 impressing the mold into the soft plate;
6 removing the mold from the soft plate to leave a vacant impression figured for
7 radiation transmission in the soft plate along the axis, and
8 enclosing the impression to provide for radiation transmission along the axis
9 of the impression.

1 2. The capillary optic produced by impression according to claim 1 and
2 wherein:
3 the enclosing step includes:
4 etching the mold out of a soft plate.

1 3. The capillary optic produced by impression according to claim 1
2 wherein:
3 two soft plates are used on either side of the mold.

1 4. The capillary optic produced by impression according to claim 1 and
2 wherein:
3 the enclosing step includes placing a cover plate is over the vacant impression.

1 5. The capillary optic produced by impression according to claim 1 and
2 wherein:
3 the mold is a wire.

1 6. The capillary optic produced by impression according to claim 5 and
2 wherein:
3 the wire is produced by an differential etching process.

1 7. The capillary optic produced by impression according to claim 1 and
2 wherein:
3 providing two plates of identical materials; and,

4 the impressing step provides symmetrical imprints.

1 8. The capillary optic produced by impression according to claim 1 and
2 wherein:
3 providing two plates of different materials; and
4 the impressing step provides asymmetrical imprints.

1 9. The capillary optic produced by impression according to claim 1 and
2 wherein:
3 the impressing step includes the use of rollers.

1 10. The capillary optic produced by impression according to claim 1 and
2 wherein:
3 the mold having an external profile figured for radiation transmission is a
4 paraboloid.

1 11. The capillary optic produced by impression according to claim 1 and
2 wherein:
3 the mold having an external profile figured for radiation transmission is an
4 ellipsoid.

1 12. The capillary optic produced by impression according to claim 1 and
2 including the additional step of placing a reflection enhancing film on the impression before
3 enclosing the optic.

1 13. The capillary optic produced by impression according to claim 1
2 wherein the reflection enhancing film is a multi-layer coating.

1 14. The capillary optic produced by impression according to claim 1
2 wherein the optic is used with an x-ray tube.

1 15. The capillary optic produced by impression according to claim 1
2 wherein the optic is used with synchrotron radiation.

1 16. The capillary optic produced by impression according to claim 1
2 wherein the optic is used with an electron microprobe instrument.

1 17. The capillary optic produced by impression according to claim 1
2 wherein the optic is used with light chosen from the group including visible, ultraviolet, or
3 infrared light.

1 18. The capillary optic produced by impression according to claim 17
2 wherein the light originates from optical fibers.

1 19. The capillary optic produced by impression according to claim 17
2 wherein the light originates from lasers.

1 20. The capillary optic produced by impression according to claim 1
2 wherein the mold includes more than one wire.

1 21. An optical connector including:
2 at least one soft plate,
3 an impression into the soft plate having an external profile figured for
4 radiation transmission along an axis; and,
5 an enclosure over the impression to provide for radiation transmission along
6 the axis of the impression.

1 22. A process of connecting optical fibers comprising the steps of:
2 providing at least one soft plate;
3 placing an impression into the soft plate having an external profile figured for
4 radiation transmission along an axis;
5 placing at least one optical fiber into the external profile; and,
6 enclosing the optical fiber and external profile to permit radiation to travel
7 between the optical fiber and the impression.

1 23. The process of connecting optical fibers according to claim 20 and
2 wherein:
3 placing at least two optical fibers into the external profile from opposite ends
4 of the external profile.

1 24. The process of connecting optical fibers according to claim 22 and
2 wherein:

3 more than one impression is placed into the soft plate having an external
4 profile figured for radiation transmission along an axis.

1 25. The capillary optic produced by impression according to claim 1
2 wherein the optical coating is placed before the pressing step.

1 26. The capillary optic produced by impression according to claim 1
2 wherein:
3 the plate has curvature.

1 27. The capillary optic produced by impression according to claim 1
2 wherein:
3 the plate includes a groove to position the mold.